Biol 455: Behavioral Neuroscience

Draft Syllabus Spring 2019

This syllabus will cover the following topics:

- Introduction to the course
- About your instructor
- Required reading
- Course Assignments
- Grading Policies

Introduction to Biol 455

The goal of the course is to use an integrative and comparative approach to gain an in-depth understanding of selected topics in behavioral neuroscience of vertebrates. We will cover the basics of neurons and brains, sensory and motor systems, plasticity, and cognition. This is an advanced course that requires substantial reading assignments from the text and the scientific literature.

Course Objectives:

By the end of this course, you will be able to define, describe, or explain:

- common terminology in neuroscience
- the neural circuits underlying specific behaviors
- the coding strategies of nervous systems
- key organizing principles of nervous system function and constraints
- key mechanisms (e.g., signaling cascades) underlying nervous system function
- principles of brain evolution

About Your Instructor

Sabrina Burmeister

Dr. Burmeister specializes in the neurobiology of social and spatial cognition. Working within an evolutionary context, her research addresses questions such as *How do animals find their way about? What are the molecular mechanisms that are common to hippocampal plasticity in all vertebrates? How has selection shaped the cognitive phenotype of animals?*

Dr. Burmeister has been teaching Behavioral Neuroscience and related courses for over 13 years. This course is her true teaching passion. When she is not teaching or doing research, Dr. Burmeister enjoys reading, sewing, and riding her bike in a virtual world called Watopia.

Required Reading

The required textbook is Georg Striedter's **Neurobiology: A Functional Approach.** For some lessons, we have supplementary reading assignments that can be found in Resources. In addition to these resources, we will read and analyze some primary literature papers together during class.

Course Assignments & Grading

Assignments:

Guided Reading Questions (GRQs): Before each lecture, you will complete the Guided Reading Questions. The questions are designed to help you to focus your attention as you read, give you some insight into the importance of various topics, and to cause you to think a bit more deeply as you engage with the material. The questions should be completed at your own pace (open-book) and are un-graded. They will prepare you for the reading quizzes and for class activities. You should expect to spend at least 2 hours on each set of GRQs.

Reading quizzes: Following completion of the GRQs, you will complete a closed-book reading quiz to test your knowledge of the reading material. The quizzes will be done on Sakai; they will expire 15 minutes before class. The quizzes should be completed independently.

Review Assignments: Following lecture, you will complete a review assignment on Sakai. These are designed to help you integrate the knowledge you have practiced during class and to prepare you for the exams. The TA will check completion of the review assignments and they will form the basis of in-class discussion/review.

Primer: Each student will create a "Primer" on an advance in behavioral neuroscience. The Primer article will highlight a recent study by putting the study within the context of the field, explaining why the study represents a recent advance, and identifying remaining gaps in knowledge. The goal of these assignments is to evaluate students' ability to analyze and synthesize course material. Students will work in groups during development of the Primer.

Exams: There will be two midterm exams and one cumulative final. The exams will be short answer and will test a range of levels of understanding, from factual recall to the ability to apply your knowledge to novel scenarios.

Grading:

Semester grades will be based on the following:

Assessment	% of course grade
Reading Quizzes	6
Review Assignments	4
Primer	15
Midterm 1	20
Midterm 2	20
Final Exam	35

Letter grades will be assigned according to the following distribution:

A (93-100), A- (90-92.9),

B+ (87-89.9), B (83-86.9), B- (80-82.9),

C+ (77-79.9), C (73-76.9), C- (70-72.9),

D+ (67-69.9), D (60-66.9),

F (below 60).

When calculating final semester grades, **I do not round**.

Grading policy:

If at any point you feel you were not evaluated fairly, you must submit a written description of your concern to me within 1 week of receiving the notice of the grade; submitting a concern by email is not acceptable. You must explain why you believe you deserve a different grade than the one you initially received. Concerns expressed after the 1-week deadline will not be considered.

According to University Policy, grade changes are permissible only when a calculation error had been made. Grades are not awarded based on a need to graduate, how hard a student works in class, the desire for a higher letter grade, etc., but are based solely on assessments of learning. This does not mean that I'm unwilling to work with individual students who are facing extenuating circumstances that interfere with their ability to participate fully in class. Any such situations need to be brought to my attention at their inception. *Any delay to do so will limit my ability to assist you.*

Making up assignments: There are no make-up quizzes or review assignments.

Make-up exams: I will offer a make up exam for midterms that are missed due to University-authorized travel or urgent, acute illnesses (e.g., emergency room visit) that can be verified with documentation. If such an illness arises, the student must contact me by email on the day of the missed midterm. Make-up exams are essay exams. For the final exam, a make-up will only be given if an official "Examination Excuse" is granted by the Dean's office (see Undergraduate Bulletin).